GEOGRAPHIC SCHOOL BULLETINS

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Next Week: **A Complete Issue on Oil**

Though Mohammed V encourages Western dress these Moroccan actors wear veils

PHOTO SOUISSI

UMI

Today's Moroccan nation is made up of more than the former French protectorate, however. It also includes the coastal strip of former Spanish Morocco and the international city of Tangier.

The same in area as California, Morocco commands the Strait of Gibraltar as well as fronting the Atlantic. The Atlas Mountains, topping 13,000 feet, slice across the land from northeast to southwest. On the coastal side of this triple range a series of rich agricultural plains rolls seaward. Inland, the Sahara gives notice that it is beginning; land is arid and rocky.

Morocco's biggest city, Casablanca, is a gleaming, streamlined Atlantic port, largely built by the French. But other cities, including the capital, Rabat, often hide behind mighty walls, only their minarets probing the sky. Dried mud buildings, colored pink and red, turn their backs on narrow streets and face only their walled courtyards. The smell of lamb and roast chicken rises from kitchens to blend with street aromas of leather tanning.

In such inland cities as Fès, Meknès, and Marrakesh, and in the countryside around them, Arabs and Berbers are gradually building their nation. Unifying their energies has been no easy task. A few years ago they frequently raided one another, while vicious guerrilla warfare flamed between nationalists and French soldiers and colonists.

That was during the troubled period after World War II when Morocco seethed with a sense of its national importance bred by its strategic role in the African campaign. Its sultan, the same Mohammed who arrives today, recognized the signs and sympathized with the nationalists—yet he always kept aware of his country's dependence on France. Emotions exploded around him. The French exiled him and his family, but such a storm of resentment followed that he was restored to his throne in 1955. A year later he negotiated independence for

OLD MOROCCO seems typified by this fortification of Agadir in the Atlas Mountains

© EMIL BRUNNER

J. BELIN

Morocco King Arrives

PHOTO SOUISSI

FLAGS are flying along the streets of Washington, D. C., today, to welcome a king—Sidi Mohammed ben Youssef, Moslem ruler of Morocco. While he pays his official visit to the United States, his mind may well be on the scenes shown here. For his monarchy in northwest Africa needs more tractor drivers (left) to replace such picturesque methods as using the hoofs of pivoting horses to thresh grain, above.

An infant among the world's independent nations, Morocco is struggling to get on its feet. Its problems are huge, but so are its potentialities. King Mohammed V, who led his people while Morocco was still a French colony, has long urged adoption of Western-style education and other American and European ideas. He feels that strong ties with Western nations—especially the former mother country, France—are essential to Morocco's full and prosperous development.

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The Coelacanth

FRESH FISH (300,000,000 years old)

IN 1938, off the coast of South Africa, fishermen hauled in a routine catch. Among assorted fish was a weird monster with undershot jaw, thick tail, and eight paddle-shaped fins. It caught the attention of the woman curator of a local museum. She did a double take, then got in touch with another zoologist, Dr. J. B. Smith, who confirmed her incredible identification. The fish was indeed a coelacanth.

Scientists had taken for granted that the coelacanth (pronounced seél-a-kanth) was as extinct as the dinosaur. After all, fossil remains reveal that the fish lurked in the depths about 300,000,000 years ago. Yet here was one of the family, stubbornly surviving in 1938.

And if one lived, what about others? For 14 years Dr. Smith, seen below with a coelacanth, and others combed the seas. Finally, in 1952, a cable from the French Comoro archipelago, north of the Mozambique Channel, said fishermen there had one ashore. Dr. Smith persuaded the South African government to fly him to the scene, but arrived too late. This coelacanth had decomposed.

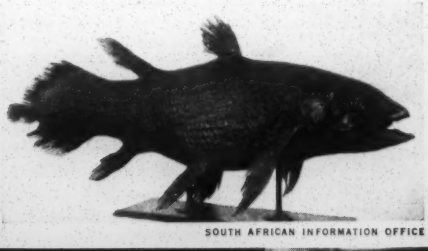
After that, Comoro fishermen mobilized and hauled in nine more, enabling specialists of many countries to make studies.

A few months ago, the first coelacanth cast to be shown in the United States arrived at the American Museum of Natural History in New York City.

Frighteningly ugly, the scaly body stretches nearly five feet. Fins are on small, scaly stalks, reminding scientists that similar growth evolved slowly into the primitive limbs of land vertebrates.

Relatives of the strange fish did change form in this way, gradually developing into higher forms of mammals. But the old, old coelacanth is not a missing link between sea and land life. It just kept on being a coelacanth, minding its business and waiting millions of years to be caught.—J.A.

HEATHER SYMONS



SOUTH AFRICAN INFORMATION OFFICE

UMI

Morocco, leaving the door open for continued French interest in the former protectorate.

Independence was what the nationalists wanted. But many French colonists, who had previously controlled a large share of Morocco's wealth, pulled out of the country, taking their money with them. Morocco has suffered from this loss of capital and Mohammed V is determined to lure it back again in the form of investments.

The United States has a strong strategic interest in Morocco. Four bases have been built in the country for the Strategic Air Command.

GENE A. GERACI

It is no surprise to see a rumbling jet bomber taxi past a farmer tilling the soil with a Biblical-time hoe, above. From its Moroccan base, the bomber can cover much of Europe.

An autocratic monarch, King Mohammed seeks a democratic, constitutional government for Morocco. Elections will be held, probably this spring, to choose assemblymen who will draft the constitution.

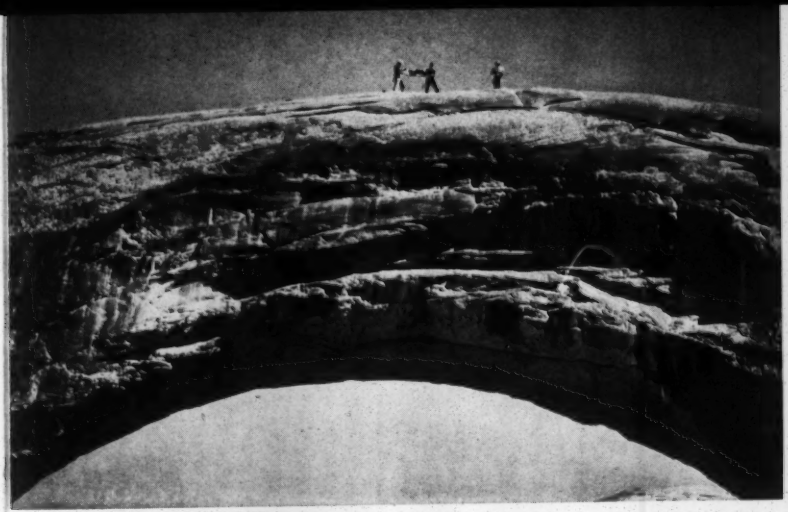
In the meantime, Mohammed wants every Moroccan child, girls as well as boys, to be attending school in five years time. In a country that is still largely illiterate, this poses a tremendous problem. But already private homes are being turned into schools. The cost of the project is estimated at about $160,000,000. Where will it come from? That's another problem.

J. BELIN

King Mohammed's projected reforms go beyond education. He would like to see much of the traditional Moslem custom brought up to date. The story goes that he encouraged one of his daughters to wear Western-style clothing and put away the veil. Following her example many Moroccan women now drive their cars to market, take part in civic life, and even swim in Casablanca's pool—the world's largest—in the latest-style Bikinis.

This emancipation of women is not entirely popular, especially in the hill towns and farms. See "From Sea to Sahara in French Morocco," February, 1955, *National Geographic Magazine* —E.P.

EDUCATION will be a "must" in the new Morocco. Already it flourishes in such places as the Moslem College of Azrou where this skull-capped Berber youngster learns his lessons from a fezzed teacher.



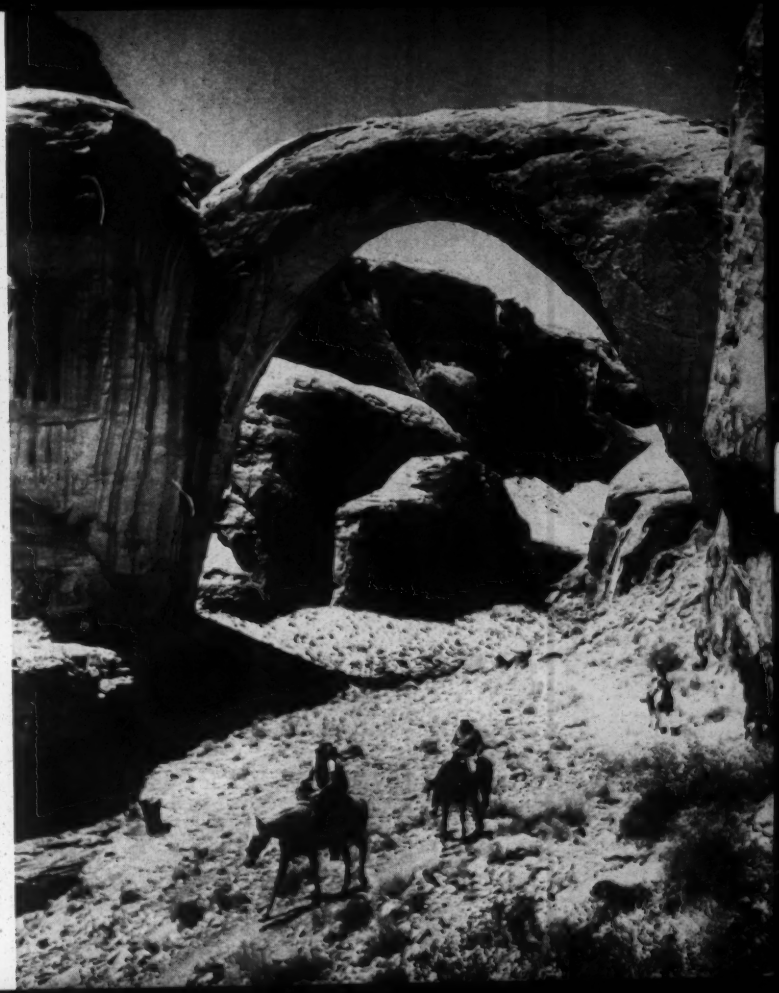
RALPH GRAY, NATIONAL GEOGRAPHIC STAFF

canyon, we reached a rock promontory that overlooks the end of the span. We saw that if we could clamber down that, we would actually be standing at the beginning of the bridge.

A rope did the trick. I went first, left, feeling for toe holds in the hot rock. Finally, my feet touched the curve of the arch. Ralph followed, then 16-year-old Mickey Haskell, a California boy in our party.

From a distance, Rainbow Bridge looks slim. Now that we were on it, we saw it is as wide as a country road and a solid 42 feet thick. We walked up to the top of the crown and in a moment of supreme confidence, strolled toward the edge. Suddenly the floor of the canyon spread far below our feet. The figures of other members of our party looked like insects. I confess I felt like crawling away from that gaping emptiness.

Later, as we rode away, right, I wondered aloud if I would ever stand again on the crest of the world's greatest natural bridge. Ralph didn't answer. I suppose he was planning his story about Rainbow. It appeared in the *National Geographic* last April.



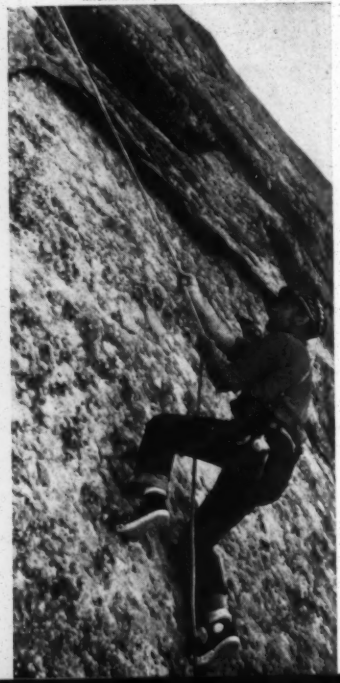
RALPH GRAY, NATIONAL GEOGRAPHIC STAFF

EDWARDS PARK, NATIONAL GEOGRAPHIC STAFF

ON TOP OF OLD RAINBOW
largest natural bridge

By Edwards Park, National Geographic Staff

RALPH GRAY, NATIONAL GEOGRAPHIC STAFF



I have never stood atop the dome of the United States Capitol. But I have climbed to the top of Rainbow Bridge, in southern Utah. The small picture at the left shows that this mighty span of reddish sandstone, carved by tumbling canyon torrents milleniums ago and polished by wind and sand, would cap the Capitol.

Hidden in a weird tangle of canyons just south of the Colorado River, Rainbow Bridge wasn't explored by white men until 1909. It still takes a small expedition to reach it. I visited Rainbow Bridge National Monument with Ralph Gray of the National Geographic staff while we were on vacation from editing your *Geographic School Bulletins.*

At first sight, it seemed to us impossible that nature alone could have shaped this slender, rounded curve, soaring from one canyon wall to the other. But as we climbed toward it, it became very real—and formidable.

Using natural toe holds, we shinnied up a lofty ledge on the canyon wall, then made our way toward the crown of the bridge, now below us. Bricklike sandstone baked under our sneakers and reflected glowing heat. We paused (far left) to pass the canteen and view our goal.

Scrambling around the side of the

Cranberry picking demands special clothes. Almost constantly kneeling, harvesters wear kneepads to preserve kneecaps, and wide-brimmed straw hats to cut the glare of the Indian summer sun. Picking sometimes is still done with old-fashioned rake-toothed scoops, but mostly by machine, below. Berries pass through winnowing machines, to remove the chaff.

They move next to the separator. This device makes use of a notable characteristic: Good cranberries bounce. Bad ones don't. Thus, each berry gets seven chances to bounce over four-inch wooden hurdles. The lively ones that make it move on to screening tables. The tired berries drop out of the race. About half the crop passes the test. Packaging machines automatically weigh the berries and dump them into cellophane bags.

Like corn and soybeans, cranberries find many uses beyond the tart sauce flavoring Thanksgiving, Christmas, and Easter meats. They go into cranberry flip, cranberry-banana shake, cranberry-pineapple punch, cranberry susans, cupcakes, sundae toppings, juice cocktails, and relish. The Thanksgiving tradition that spurred the cranberry to fame actually has retarded its use. They're fine food the year around, say the growers.

America's settlers were content for nearly two centuries to harvest cranberries from wild vines. Early in the 19th century, first attempts were made to transplant and cultivate cranberries. Henry Hall, a Revolutionary War veteran from Massachusetts, became a pioneer cultivator, perhaps the first. He transplanted wild vines on a swampy site near Dennis, on Cape Cod, apparently with success, for his ground was credited with averaging about 70 bushels per acre. Good prices and unusual profits stimulated many plantings shortly before the Civil War. Many restless, unemployed war veterans turned to cranberry culture for a living.

Failures were plentiful before planters discovered conditions necessary for success. They needed bog areas with peat soil, leveled off and weeded. They needed to dig drainage ditches that would flood during the winter to protect vines from cold air and insect pests. They spread sand on peat to promote growth.

Cranberry raising is one of the most complicated and intensive of farming enterprises. So urgent was the need for pickers around 1875 that children were sent to the fields. Schools went on vacation at picking time. Season's end was celebrated by a Cranberry Dance.

Cranberries may be credited for some of the diversity of the New England population. Farmers from Finland, Portugal, and the Azores came to harvest them and stayed.

A cranberry bog changes dress as often as a woman. Flooded in winter, it turns white while children skate over it. Spring paints the dormant vines bright green. Summer's blossoms spread a pale pink mist over the bog. It becomes green again as the berries set. After the first frost, the coloring turns to purple-red until the protecting water flows in—then the cycle starts afresh—S.H.

NATIONAL CRANBERRY ASSOCIATION

UMI

NATIONAL CRANBERRY ASSOCIATION

From Bog to Banquet

CRANBERRY SAUCE

IT'S a sure bet you'll say, "Pass the cranberries, please," when the turkey piles on your plate this Thanksgiving. There's plenty for all. Harvesters like those pictured above filled over a million barrels this year from the red-ripe bogs of Massachusetts, Wisconsin, Washington, New Jersey, and Oregon. In those States, some 21,620 acres manage to satisfy a Thanksgiving eating tradition begun by the pilgrims—and enthusiastically helped along by you.

Cranberries grew in semiswampy areas of New England when the Pilgrims set foot there. Friendly Indians grunted a name, I-bimi, "bitter berry." But they ate them and made cranberry poultices to treat blood poisoning. Cranes ate cranberries, too, so the colonists tagged them crane-berries which evolved into cranberries. In 1677, Massachusetts sent King Charles II ten bushels, terming them "choicest product of the colony." Unsweetened, they proved too bitter for the royal palate. "Let the cranes have them," Charles is reported to have said.

Among berries or fruit, cranberries are natural individualists, refusing to grow on bushes or trees. They live on thick, low-lying vines that cover acres like a deep pile carpet. A close look reveals shiny berries hugging the foliage.

Manufacturing, indeed, supports but two or three persons in a hundred. These few make paper, silk, drugs, refined oil, cotton materials, and hemp.

Rich or poor, Thais can give lessons in happiness. When disaster comes a Thai grins, "Mai pen arai" (It hardly matters). They turn frowns into smiles with a ready formula, "Live, love, and laugh; why worry about what has not happened yet? Wait and trouble will soon blow over." They smile through life, unburdened by the caste system that shadows Indian peoples nearby. Some even yearn to be missionaries of joy. One expressed it on a visit to the United States, "Our people in Thailand are far happier than yours. We turn to you for technical help, but not in the search for happiness. We would like to teach you the art of being happy."

Dominated by gentleness, they have brought about determined but bloodless revolutions. Many Thais won't even kill flies. Missionaries to Thailand have mistaken the habit of courtesy for the hint of impending conversion. But most Thais are devout followers of the Buddha, the "Enlightened One." Thousands of temples, 300 in Bangkok alone, signify their faith. Thai men of whatever station spend some weeks in a monastery. Distinguished by saffron yellow robes, they publicly beg food and meet few denials.

Despite their gentle traits, Thais have never been yoked to western domination. They believe that any momentary enemies will eventually disappear. But like early Americans, they keep their defenses up, their powder dry.

Bangkok's pace is brisk, its business day brief. Around six a.m., nearly 900,000 residents stretch, yawn, and sidle from bed. Just before nine, autos, trams, buses, bicycles, tricycles, and rickshas careen along traffic lanes. Work breaks for lunch from noon to one p.m. Office work ends at four p.m., bringing about another traffic uproar.

Standing at the mouth of the Chao Phraya River, the 750-mile-long chief watercourse of Thailand, Bangkok handles the country's trade, brought by river boat and railroad to waiting ships, or manufacturing plants.

Like murky threads, scores of canals unravel off the river. "Venice of the East" is Bangkok's inevitable nickname. Many families live in floating homes,

RAE GILMAN

Thailand

A Happy Nation Lies In the Turmoil of Southeast Asia

W. ROBERT MOORE, NATIONAL GEOGRAPHIC STAFF

SHE wears her gleaming, pointed headdress like a long-accustomed coiffure. Her graceful body sways and postures to express the feeling of one of Thailand's epic stories, the 22-century-old *Ramayana*.

For the enchanted eyes of her countrymen, this Thai dancer symbolizes revered customs of earlier ages. And though the hectic present surges around this sprawling monarchy in southeast Asia, its 18,000,000 people cling to the ceremonies and traditions of the past.

Yet those changes that don't disturb custom too much are welcomed by the agreeable Thais. Right now, they're celebrating a $66,000,000 World Bank loan that will finance the irrigation of an additional 2,000,000 acres, help harness floods, and increase electrical output. The need for the last item is evident. Bangkok, the capital, is so electric-power-conscious that the demand has leaped some 15 percent a year for the past six years.

High voltage is hard to envision in Thailand, formerly called Siam. Saying the name with eyes closed, one conjures up white elephants, temples with tiled roofs and votive spires bright and brooding in tropical sun; elephants, again, shunting teak logs; many-sized figures of the meditative Buddha; dancers with tight-locked lips; water wheels; yellow-robed priests; and floating markets where producer and buyer rub gunwales, below.

As strangely shaped as some of its architecture, Thailand's irregular northern area bulges between northwesterly Burma, easterly Laos, and southerly Cambodia. A grotesque turkey-neck strip streams awkwardly down the Malay Peninsula. Total area is smaller than Texas.

Deep in the land lie riches of rubies, sapphires, manganese, gold, tungsten, tin, zinc, antimony, and coal. Often with primitive methods, Thai farmers have brought a tenth of their soil under cultivation. From Bangkok look in any direction on the central plains and see rice, principal product, and basic ingredient of delicious Thai dishes. Growers will show 40 or 50 varieties. In some eastern and central areas, cotton whitens landscapes. Jute grows along the flooding river area between Sawankhalok and Ayutthaya. Soybeans and bright-leaf Virginia tobacco thrive in the alien sun of Thailand's north.

Southern plantations yield rubber, while cattle, fruit, spices, coffee, coconut products, corn, and hemp production help relieve the industrial unemployment that is unavoidable in a nation that imports most of its manufactured goods.

TECK MIN

THAILAND'S KING Phumiphon Aduldet, resplendent in rich coronation robes, goes to take his oath to support Buddhism.

moored to canal banks. Launches, paddle boats, and motor boats bring shoppers to vendors' stands and floating stores on canals that serve as side streets of the business district.

Cosmopolitan Bangkok's dry-land streets are lined with stores rich in the items tourists dote on—zircons, ivory, hand-worked goods of snake and crocodile skins, sapphires, incense, candles, and jade. Birds-for-the-buying blend their strange cries above the murmur of bargaining.

Boxing, kite flying, and fish fighting bring thrills to Thailand's sporting set. Fists, feet, elbows, or knees figure in a slam-bang Thai prize fight. But ceremony-minded, the contestants precede their onsets with a ritual of dancing postures and obeisances while flutes wail and drums throb. Adults and children send kites aloft in a special war game. Soaring into "enemy" territory, kites are guided into each other in an attempt to snag others, yet keep flying. Thailand's *Betta Splendens*, lovely tropical fishes, grow furious at the sight of one another. They glow with fiery colors, spread their fins, and raise their gills preparing for combat. Sometimes, they battle all night while delighted spectators bet avidly. The fish feud ends only when the weaker swims away, nursing its wounds.

MARIE J. MATTSON

Remote from Thailand's 20th-century trend, primitive tribesmen mind their corn, vegetables, and opium poppies on lonely northern mountains. Such peaks as 5,499-foot Doi Sutep limit their horizons. They wear bright clothing and ask nothing but to be let alone.

Curiously, this wish exactly opposes Thailand's. Situated in the most turbulent corner of Asia, within a stone's throw of Indonesia, China, India, and Pakistan, the country is as restless for progress as any in an increasingly restless world.—S.H.

ELEPHANTS do bulldozer work in a teak forest near Chiengmai. Logs will float down-river to Bangkok mills.